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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,552	07/08/2003	Ian Robert Appelbaum	129-001	9049
7590	12/04/2006		EXAMINER	
James Marc Leas 37 Butler Drive S. Burlington, VT 05403			JACKSON JR, JEROME	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/615,552	<b>Applicant(s)</b> APPELBAUM ET AL.	
	<b>Examiner</b> Jerome Jackson Jr.	<b>Art Unit</b> 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-48, 57-60 and 64-67 is/are pending in the application.
- 4a) Of the above claim(s) 9, 21-30, 33-38, 42, 44-46, 58 and 64-67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-20, 31, 32, 39-41, 43, 47, 48, 57, 59 and 60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/22/06 has been entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-4 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nurmikko '725.

Upon further consideration of figure 4 of '725 it is apparent the electrically conductive layer 22, or the optional embodiment with the MTJ directly disposed on the VCSEL, is a Schottky contact, and consequently, at least an "energy barrier". By the laws of physics any metal/semiconductor junction broadly defines a Schottky contact with an energy barrier depending on the particular material properties. In fact any heterojunction between any different materials broadly defines an "energy barrier" whose magnitude depends on the particular material properties. In particular, in Nurmikko the NiFe or Co metal disposed on the GaAs inherently defines a Schottky contact and "energy barrier". Claim 1 therefor does not structurally distinguish over '725. Additionally the magnetic field is pointing in the claimed direction in order for the device to detect the field. The new limitations do not distinguish over Nurmikko.

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Claims 1-8,10-20,31,32,39-41,43,48,57,59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nurmikko in view of Sato '143.

As previously, it would have been obvious to have practiced a bipolar spin valve device as Sato in an integrated led/valve MOD for the advantage of greater collector current and hence greater light emission. See also the rejection of 3/6/06 comprising Nurmikko with Sato.

Claims 1-8,10-20,31,32,39-41,43,47,48,47,57,59,60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang in view of Nurmikko.

Jiang teaches the structure claimed. Nurmikko teaches a magnetic field sensing use for a device similar to Jiang where the magnetic field is aligned parallel to the interface of the magnetically sensitive portion and light emitting portion in order to sense the magnetic field. It would have been obvious to practice the Jiang device as a magnetic sensor with the magnetic field aligned parallel as taught in Nurmikko. Claim 1 is obvious over using the device as Jiang as a magnetic field sensor from the teachings of Nurmikko.

Applicant's arguments with respect to all of claims have been considered but are moot in view of the new ground(s) of rejection.

In regard to previous arguments Nurmikko does not teach an "energy barrier" see the above analysis showing there is an "energy barrier" in Nurmikko. Note also claim 1 does not recite any particular energy barrier magnitude or Schottky metal that would unequivocally distinguish over the inherent energy barrier in Nurmikko. Claim 1 is broad. In regard to arguments concerning Jiang see the rejection above.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson Jr. whose telephone number is 571-272-1730. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jj

  
JEROME JACKSON  
PRIMARY EXAMINER